UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
9311 GROH ROAD
GROSSE ILE, MI 48138

MEMORANDUM

SUBJECT: Vapor Intrusion Sampling Plan for the 2B Phase of the General Mills Site, Minneapolis, Minnesota

FROM: Keith Fusinski, PhD Environmental Health Scientist US EPA
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TO: Leah Evison, Remedial Project Manager, US EPA
Superfund Division, Remedial Response Branch #1, Remedial Response Section #1

DATE: 2/29/2012

STATEMENT OF THE ISSUES

RPM Evison requested a review of the Vapor Intrusion Evaluation: Phase 2A Results and Phase 2B Work Plan East Hennepin Avenue Site, Minneapolis, Minnesota report prepared by the BARR Engineering Company (BARR) on behalf of General Mills, Inc.

COMMENTS AND RECOMMENDATIONS

General Comments

Minnesota Pollution Control Agency (MCPA) uses as trichloroethylene (TCE) soil gas screening level of 30 ug/m^3 based upon the 10 times residential indoor Intrusion Screening Value (ISV) of 3 ug/m^3. Based upon the 2011 toxicological report issued by the Integrated Risk Information System (IRIS) and the 2010 Region V Vapor intrusion guidance, US EPA uses a more protective concentration of 4.3 ug/m^3 for residential soil gas screening. It is recommended the US EPA screening value be used to evaluate soil gas samples at the General Mills site.

Specific Comments

Page 2. Phase 2A Results. 3rd paragraph.
Collecting soil gas samples from within the head space of existing monitoring wells is not appropriate. Monitoring wells act will act as a path of least resistance for volatile contaminants in groundwater. The vapors of these chemicals will accumulate in the head space of the well at greater concentrations than would normally be found in soil gas collected from properly installed vapor probes. Therefore, it is not surprising that the air samples collected from the wells was well above the expected soil gas concentrations.

Page 2. Phase 2B Work Plan – Sample Locations.
The number of suggested sampling locations is insufficient to address the large area impacted by the plume. It is stated in the 2002 OSWER Draft Vapor Intrusion Guidance

that, "With respect to the spatial distribution of sampling points, close proximity to the building(s) of concern is generally preferred; however, it may be possible to reasonably estimate concentrations based on data from soil gas samples collected about a larger area" (US EPA 2010). Therefore, it is recommended that an initial soil gas sample be collected from each potentially affected residential block of houses. Due to lateral migration of vapors, this initial sampling event should be followed up be further sampling in a step out fashion 100 feet in each direction from each initial sampling point which has concentrations of TCE above the US EPA screening level of 4.4 ug/m^3. This 100 foot step out sampling should be continued until the entire area has been delineated.

The next steps in the process would be to perform subslab sampling at any residence within 100 feet of a sampling point which has TCE soil gas concentrations above the US EPA screening level of 4.4 ug/m^3. Followed by indoor sampling of potentially affected houses.

Page 3. Phase 2B Sampling Locations.
As stated previously collecting soil gas samples from within ground water monitoring wells is inappropriate. Additionally, since ground water wells produce a path of least resistance for volatile chemicals to collect, it goes to reason that the area adjacent to the wells would have a lower concentration of volatiles in the soil gas then in areas further away from the well. For this reason, it is suggested that soil vapor probes installation not be co-located with ground water monitoring wells.

Page 3. Phase 2B Work Plan – Sample Collection 3rd paragraph.
US EPA recommends that due to possible leakage of atmospheric air into samples being a valid concern, soil gas samples should not be collected less than five feet below the ground surface (US EPA 2002). It is also recommended that soil gas samples not be collected within two feet of the groundwater surface. Current region V procedure is to collect soil gas samples two feet above the groundwater table to allow for groundwater to soil gas partitioning (US EPA 2010).

Figure 2
This figure is missing location designations for the sampled monitoring wells.

REFERENCES

US EPA 2002 - OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). November 2002.

US EPA 2010 – Region V Vapor Intrusion Guidebook. October 2010